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TT-T-306

TT-T-306
JUNE 19, 1947

FEDERAL STANDARD STOCK CATALOG

Section IV

(Part 5)

FEDERAL SPECIFICATION

FOR

THINNER; SYNTHETIC-ENAMEL

"This specification was approved on the above date by the Director, Bureau of Federal Supply, for the use of all departments and establishments of the Government, and shall become effective not later than September 15, 1947, for use in procurement initiated on or after that date. It may be put into effect, however, at any earlier date after promulgation.

A. APPLICABLE SPECIFICATIONS

A-1. The following Federal Specification, of the issue in effect on date of invitation for bids, shall form a part of this specification:

TT-P-141—Paint, Varnish, Lacquer, and Related Materials; General Specification for Inspection, Sampling, and Testing.

B. TYPE AND GRADE

B-1. Synthetic-enamel thinner in accordance with this specification shall be furnished in but one type and grade. (See par. 1-2.)

C. MATERIAL

C-1. See section E.

D. GENERAL REQUIREMENTS

D-1. See section E.

E. DETAIL REQUIREMENTS

E-1. *Appearance*.—The synthetic-enamel thinner shall be clear and free from suspended matter and water.

E-2. *Color*.—The color shall be no darker than an aqueous solution of potassium dichromate containing 0.0048 gram per liter.

E-3. *Spot test*.—The thinner shall evaporate completely from filter paper.

E-4. *Copper corrosion*.—The thinner shall not blacken clean metallic copper.

E-5. *Acidity*.—The residue after distillation shall be neutral.

E-6. *Toxicity*.—The thinner shall contain no benzol (benzene), chlorinated compounds, or other toxic or hydrolyzable chlorine derivatives.

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E-7. The synthetic-enamel thinner shall conform to the requirements in table I.

TABLE I.

	Maximum	Minimum
Aromatic hydrocarbon content..	60 percent	45 percent
Flash point	47° C. (116° F.)	27° C. (80° F.)
Aniline point (mixed).....
Distillation:		
First drop	155° C. (311° F.)	125° C. (257° F.)
50 percent (by volume).....	177° C. (351° F.)	145° C. (293° F.)
90 percent (by volume).....	195° C. (383° F.)	160° C. (320° F.)
End point	210° C. (410° F.)	185° C. (365° F.)

F. METHODS OF SAMPLING, INSPECTION, AND TESTS

F-1. Sampling.—Sampling shall be performed in accordance with method 102 of Federal Specification TT-P-141.

F-2. Testing.—The material shall be tested in accordance with applicable methods of Federal Specification TT-P-141 and as hereinafter specified.

F-2a. The following tests shall be conducted in accordance with Federal Specification TT-P-141:

Tests	Methods
Appearance	1 426
Color	2 424
Blackening (copper corrosion).....	510
Aromatic hydrocarbon content.....	513
Flash point	429.1
Aniline point (mixed).....	438.2
Distillation	430.1

- * Examine also for the presence of water.
 * Method 424, except dissolve the potassium dichromate in distilled water in the proportions given in paragraph E-2. Color No. 21, Saybolt chromometer and the No. 2 tube, Gardner Color Standards are approximately equal to the specified color and may be used as secondary standards.
 * Instead of the special naphtha prescribed, use normal heptane having the following characteristics:

	Minimum	Maximum
Refractive index at 20° C. (68° F.)....	1.38770	1.38785
Aniline point, ° C.	69.1	69.9

Dry the normal heptane by shaking for at least 2 minutes with anhydrous sodium sulfate. After drying, filter it to obtain complete removal of the drying agent.

F-2b. Spot test.—Transfer five drops of the sample by means of a small pipette or burette to the center of a clean white filter paper supported on a 7-centimeter crystallizing dish and allow the liquid to evaporate at room temperature, away from direct sunlight. There should be no oily spot left after 30 minutes.

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F-2c. Acidity.—Collect in a test tube the cooled residue from the distillation flask (see par. F-2a), add three volumes of distilled water and shake the tube thoroughly. Allow the mixture to separate and remove the aqueous layer to a clean test tube by means of a pipette. Add one drop of a 0.1-percent solution of methyl orange. No pink or red color should be formed.

F-2d. Benzol and chlorinated solvents.—Note the odor and other characteristics of the thinner during its examination, and if there is reason to suspect the presence of any of the solvents listed in paragraph E-6, make a confirmatory test by appropriate means.

G. PACKAGING, PACKING, AND MARKING FOR SHIPMENT

G-1. Packaging.—Unless otherwise specified, commercial packages are acceptable under this specification.

G-2. Packing.—Unless otherwise specified, the subject commodity shall be packed in substantial commercial containers of the type, size, and kind commonly used for the purpose, so constructed as to insure acceptance and safe delivery by common or other carriers, at the lowest rate, to the point of delivery called for in the contract or purchase order.

G-3. Marking.—Unless otherwise specified, shipping containers shall be marked with the name of the material, the type, and the quantity contained therein, as defined by the contract or order under which the shipment is made, the name of the contractor, and the number of the contract or order.

H. REQUIREMENTS APPLICABLE TO INDIVIDUAL DEPARTMENTS

H-1. The following departmental specifications and other publications, of the issues in effect on date of invitation for bids, and special requirements, shall form a part of this specification, and shall be applicable to purchases made under this specification by the respective departments.

H-2. Army.—Marking shall be in accordance with U. S. Army Specification 100-2, Standard Specification for Marking Shipments by Contractors, except that U. S. Army Specification 94-40645, Marking; Shipment (Domestic and Export) shall apply to Army Air Forces purchases. Copies of the specifications may be obtained without cost upon application to the procuring agency.

H-3. Navy.—
 H-3a. Applicable specifications and other publications.—

Joint Army-Navy Specifications:

- JAN-P-106—Packaging and Packing for Overseas Shipment—Boxes; Wood, Nailed.
 JAN-P-107—Packaging and Packing for Overseas Shipment—Boxes, Wood, Wire-Bound.
 JAN-P-124—Packaging and Packing for Overseas Shipment—Containers (Cans, Pails and Drums), Metal (for Other than Subsistence Items).

Navy Department Specification:

General Specifications for Inspection of Material.

SB 8840

Bureau of Supplies and Accounts Publication:
Navy Shipment Marking Handbook.

Interstate Commerce Commission Publication:

Regulations for Transportation of Explosives and Other Dangerous Articles by Freight.

H-3a(1). Copies of Federal and Joint Army-Navy specifications (required for Navy purchases), Navy Department specifications, and the Navy Shipment Marking Handbook may be obtained without cost upon application to the Bureau of Supplies and Accounts, Navy Department, Washington 25, D. C., except that Naval activities should make application to the Supply Officer in Command, Naval Supply Depot, Bayonne, N. J. When requesting specifications, refer to both title and number (or symbol).

H-3a(2). Information as to the availability of Regulations for Transportation of Explosives and Other Dangerous Articles by Freight may be obtained from the Interstate Commerce Commission, Washington 25, D. C.

H-3b. Packaging.—

H-3b(1). *For domestic shipment.*—Unless otherwise specified, the subject commodity shall be furnished in 5-gallon square cans, 5-gallon closed-top steel containers, 55-gallon steel containers, or tank cars, as specified in the contract or order. (See par. H-3e.)

H-3b(1)a. Five-gallon square cans shall be made of special coated manufacturer's terneplate throughout and shall conform to the requirements of Joint Army-Navy Specification JAN-P-124, except that no exterior protective coating will be required.

H-3b(1)b. Five-gallon closed-top steel containers shall conform to the requirements of Joint Army-Navy Specification JAN-P-124, except that no exterior protective coating will be required.

H-3b(1)c. Fifty-five-gallon steel containers shall conform to the requirements of Specification 17E of the Interstate Commerce Commission Regulations.

H-3b(2). *For overseas shipment.*—Unless otherwise specified, the subject commodity shall be furnished in 5-gallon closed-top steel containers or 55-gallon steel containers (see pars. H-3b(1)b and H-3b(1)c), as specified in the contract or order (see par. H-3e).

H-3c. Packing.—

H-3c(1). *For domestic shipment.*—Unless otherwise specified, 5-gallon closed-top steel containers and 55-gallon steel containers will require no packing. Two 5-gallon square cans shall be packed in a nailed wood or wire-bound wood box conforming to the requirements of Joint Army-Navy Specification JAN-P-106 and JAN-P-107, respectively. Each box shall be strapped in accordance with the requirements of the appendix of the applicable box specification.

H-3c(2). *For overseas shipment.*—Unless otherwise specified, 5-gallon closed-top steel containers and 55-gallon steel containers will require no packing.

H-3d. Marking.—In addition to any special marking required by the contract or order, interior packages, 5- and 55-gallon steel containers, and shipping containers shall be marked in accordance with the requirements of the Navy Shipment Marking Handbook.

H-3e. Ordering information.—Requests, requisitions, schedules, and contracts or orders should specify the type of container desired, and whether the subject commodity is to be packaged, packed, and shipping containers marked for domestic or overseas shipment. (See pars. H-3b, H-3c, and H-3d.)

I. NOTES

(This section is intended primarily for the information and guidance of purchasing officers and others interested in procurement, although it may also contain information of interest to manufacturers or suppliers. Recommendations under this section MUST be written into purchase orders or contracts to become mandatory.)

I-1. Purchasers should exercise any desired options offered herein. (See pars. G-1, G-2, G-3, H-3b, and H-3c.)

I-2. This specification covers a volatile thinner of intermediate solvent power which is suitable for thinning many synthetic resin base enamels. Most oil paints may be thinned with mineral spirits (Fed. Spec. TT-T-291) or turpentine (Fed. Spec. LLL-T-791 or LLL-T-792).

I-3. A formula which should produce a thinner of the required solvency and boiling range is given below:

	Percentage by volume
High solvency thinner.....	50 percent
(90% aromatic content, boiling range, 135° to 180° C., mixed aniline point, 19° C.)	
Mineral spirits	50 percent
(boiling range, 150° to 210° C., straight aniline point, 60° C.)	

I-4. Basis of purchase.—

I-4a. Unit.—Synthetic enamel thinner should be purchased either by volume, the unit being a gallon of 231 cubic inches at 15.5° C. (60° F.), or by weight. A gallon of thinner at 15.5° C. (60° F.) weighs 6.8 to 6.9 pounds. It usually has a specific gravity of 0.82 to 0.83. The weight in pounds per gallon of any sample can be determined by multiplying the specific gravity at 15.5° C./15.5° C. (60°/60° F.) by 8.33. Example: If the specific gravity at 15.5°/15.5° C. is 0.825, the weight per gallon at this temperature will be 0.825 x 8.33 = 6.872 pounds. When purchased by weight, quotations should be by the pound or by the 100 pounds. The request for bids should state whether quotations shall be by the gallon, pound, or 100 pounds.

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I-5. It is believed that this specification adequately describes the characteristics necessary to secure the desired material, and that normally no samples will be necessary prior to award to determine compliance with this specification. If, for any particular purpose, samples with bids are necessary, they should be specifically asked for in the invitation for bids, and the particular purpose to be served by the bid sample should be definitely stated, the specification to apply in all other respects.

I-6. Federal specifications do not include all types, classes, grades, sizes, etc., of the commodities indicated by the titles of the specifications, or which are commercially available, but are intended to cover the types, etc., which are suitable for Federal Government requirements.

I-7. An Index of Federal Specifications may be purchased as noted in the paragraph below, price to be obtained from the Superintendent of Documents.

I-8. Copies of this specification and of TT-P-141 may be obtained upon application, accompanied by postal note, money order, coupon, or cash, to the Superintendent of Documents, Government Printing Office, Washington 25, D. C. Price of this specification 5 cents; TT-P-141, 20 cents.

Notice.—When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely related Government procurement operation, the United States Government thereby incurs no responsibility nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data, is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.

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For sale by the Superintendent of Documents, Washington 25, D. C.
Price 5 cents

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TT-T-266

AMENDMENT-1
SEPTEMBER 14, 1943

SUPERSEDING EMERGENCY
ALTERNATE FED. SPEC.
E-TT-T-266
December 21, 1942

FEDERAL STANDARD STOCK CATALOG

Section IV

(Part 5)

FEDERAL SPECIFICATION

FOR

THINNER; LACQUER*

This amendment was approved on the above date by the Director of Procurement, for the use of all departments and establishments of the Government and shall become effective not later than November 15, 1943. It may be put into effect, however, at any earlier date after promulgation.

The following changes shall be made in Federal Specification TT-T-266, dated April 30, 1942.

Page 1:

Paragraph E-1a:

Line 2. Delete "0.820" and "0.860" and substitute "0.790" and "0.840" respectively.

Paragraph E-1b:

Line 2. Delete "80° C (176° F)" and substitute "75° C (167° F)".

Line 3. Delete "20" and substitute "30".

Line 5. Delete "50" and substitute "60".

Page TT-T-266-2:

Paragraph E-1c. Table.

Line 1. Column "Maximum". Delete "35" and substitute "40".

Line 1. Column "Minimum". Delete "25" and substitute "30".

Line 2. Delete "Hydrocarbons (coal tar and petroleum)" and substitute "Petroleum Hydrocarbons." Column "Maximum" delete "50" and substitute "40"; column "Minimum" delete "40" and substitute "30".

Paragraphs E-1m, E-1m (1), and E-1m (2). Delete in entirety.

*Certain provisions of this amendment are intended to conserve critical or strategic materials. When the present emergency is over, this amendment will be considered for revision.

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SB 8843

TT-T-266
Amend.-1-2
(Sept. 1943)

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(Section IV, part 5)

Page TT-T-266-3:

Paragraph F-2c (2):

Line 1. Delete heading "*Coal tar and petroleum hydrocarbon determination*" and substitute "*Petroleum hydrocarbon determination*".

Line 9. Delete "coal tar and".

Pages TT-T-266-6 to 8 incl.:

Paragraphs F-2m to F-2m (7), including Figure 1. Delete in their entirety.

NOTE.—The following formulation has been found to pass the requirements of this amendment:

26.0% butyl acetate.
8.0% ethyl acetate.
15.0% methyl ethyl ketone.
12.5% butyl alcohol.
38.5% petroleum naphtha.

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AMENDMENT-2
JANUARY 7, 1944

SUPERSEDING
AMENDMENT-1
September 14, 1943

FEDERAL STANDARD STOCK CATALOG

Section IV

(Part 5)

FEDERAL SPECIFICATION

FOR

THINNER; LACQUER*

This amendment was approved on the above date by the Director of Procurement, for the use of all departments and establishments of the Government, and shall become effective not later than March 15, 1944. It may be put into effect, however, at any earlier date after promulgation.

The following changes shall be made in Federal Specification TT-T-266, dated April 30, 1942:

Page 1:

Paragraph E-1a:

Line 2. Delete "0.820" and "0.860" and substitute "0.800" and "0.850" respectively.

Paragraph E-1b:

Line 2. Delete "80° C. (176° F.)" and substitute "70° (158° F.)"

Line 3. Delete "20" and substitute "45."

Line 5. Delete "50" and substitute "65."

Page TT-T-266-2:

Paragraph E-1c. Table:

Line 1. Column "Maximum." Delete "35" and substitute "40."

Column "Minimum." Delete "25" and substitute "30."

Line 2. Delete "Hydrocarbons (coal tar and petroleum)" and substitute "Petroleum Hydrocarbons."

Line 3. Column "Maximum." Delete "20" and substitute "10."

Column "Minimum." Delete "10" and substitute the character "—."

Paragraphs E-1m, E-1m (1) and E-1m (2). Delete in entirety.

*Certain provisions of this specification are intended to conserve critical or strategic materials. When the present emergency is over, this amendment will be considered for revision.

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TT-T-266
AMEND.-2-2 FEDERAL STANDARD STOCK CATALOG
(Jan. 1944) (Section IV, Part 5)

Page TT-T-266-3:

Paragraph F-2c (2):

Line 1. Delete heading "Coal tar and petroleum hydrocarbon determination" and substitute "Petroleum hydrocarbon determination."

Line 9. Delete "coal tar and."

Pages TT-T-266-6 to 8, incl.:

Paragraphs F-2m to F-2m (7), including figure 1. Delete in their entirety.

Page TT-T-266-9:

Paragraph I-2. Insert subparagraph I-2a (War emergency measure):

I-2a. The following formulation has been found to pass the requirements of this amendment:

	Weight (percent)	Volume (percent)
Ethyl acetate.....	20	19
Ethyl acetate.....	20	19
Butyl alcohol.....	8	8
Ethyl alcohol.....	5	5
Petroleum naphtha.....	50	52
	100	100

I-2a (1). The type of petroleum naphtha is that described as Type I, Grade B (Low Aromaticity) in Army-Navy Aeronautical Specification AN-VV-N-96. Ketones, such as methyl ethyl ketone, are not required, although they may be used up to a maximum of 10 percent.